

Remarks

Reconsideration of the above-identified application in view of the present amendment is respectfully requested. By the present amendment, claims 1, 5, 10, 14, 17, 18, 20, 21, 25, 34, 37, 38, 40, 41, 52, 53, 55, 57, 58, 63, 64, and 67 have been amended. Claims 14, 17, 18, 20, 34, 37, 38, 40, 52, 53, 55, 63, and 64 were amended to better define each respective claim and overcome the 35 U.S.C. §112, second paragraph, rejection on page of the Office Action. Claims 1, 21, 41, and 57 were amended to include the limitation that the means for laterally supporting the first end comprises an expandable support member and that the furcated end is substantially free of an expandable support member. Support for this limitation can be found in the specification on page 16, page 20, and in Figs. 1 and 2. Claims 5, 10, 25, and 58 were amended, respectively, to recite that the means for laterally supporting the first end and the means for longitudinally supporting the branches of the furcated end are attached to the outer surface of the graft layer. Support for these limitations can be found on pages 16 and 20 of the specification. Claim 67 was amended to correct a typographical error. Claims 68-77, which are indicated as being withdrawn, are withdrawn pending examination of such claims.

Below is a discussion of the 35 U.S.C. §102(b) rejection of claims 1, 6-14, 41, 43-49, and 57-60, the 35 U.S.C. §103(a) rejection of claims 2-5, 21-34, and 42, the 35 U.S.C. §103(a) rejection of claims 6, 15-17, 19, 26, 35-37, 39, 44, 50-52, 54, 56, 61-63, and the 35 U.S.C. §103(a) rejection of claims 18, 20, 38, 40, 53, 55, 64, and 66.

1. 35 U.S.C. §102(b) rejection of claims 1, 6-14, 41, 43-49, and 57-60.

Claims 1, 6-14, 41, 43-49, and 57-60 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,851,228 to Pinheiro. The Office Action states that Pinheiro, in figure 5, shows a first end having means 40 for laterally supporting the first end (Column 4, lines 45-59), a furcated second including at least two branches, each of the two branches including a longitudinal support means 49 and anchoring means 20a.

Claim 1, as noted above, has been amended. As amended, claim 1 recites an endovascular prosthesis comprising a first end having a longitudinally extending central lumen and means for laterally supporting the first end. The means for laterally supporting the first end comprises an expandable support member. A furcated second end includes at least two branches that extend from an intersection of the furcated second end. Each of the at least two branches includes a longitudinal support means and a branch lumen in fluid communication with the central lumen of

the first end. The furcated second end is substantially free of an expandable support member. An anchoring means secures the first end within a vasculature.

Claim 1 is patentable over Pinheiro because Pinheiro does not disclose that the second end is substantially free of an expandable support member. Pinheiro teaches that tubular leg stents 29a and 29b of the type similar to stents 20 may be provided within each of tubular legs 91 adjacent open end portions 91a and spaced from second end portion 90b of bifurcated graft 90. (Column 5, lines 59-64). Struts 49 are attached at both ends between leg stents 29a and 29b as shown in Fig. 5. Additional struts function in a similar manner to struts 40 in the main body portion of bifurcated graft 90 in that they provide radial support to the tubular legs 91.

The leg stents 29a and the attached struts 49 function as an expandable support member. In contrast, the second end of the endovascular prosthesis does not include an expandable support member. Thus, Pinheiro does not teach all of the limitations of claim 1 and allowance of claim 1 is respectfully requested.

Claim 6 depends from claim 1 and further recites that the means for laterally supporting the first end comprises a radially expandable stent. As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 6 is allowable because of the aforementioned deficiencies discussed with respect to claim 1 and for the limitations recited in claim 6.

Claim 7 depends from claim 1 and further recites that the first end and the second end extend along a longitudinal axis and the intersection lies in a plane perpendicular to the longitudinal axis. As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 7 is allowable because of the aforementioned deficiencies discussed with respect to claim 1 and for the limitations recited in claim 7.

Claim 8 depends from claim 1 and further recites that the at least two branches have a substantially equal length. As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 8 is allowable because of the aforementioned deficiencies discussed with respect to claim 1 and for the limitations recited in claim 8.

Claim 9 depends from claim 1 and further recites that each of the at least two branches includes a graft layer. As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support

member. Thus, claim 9 is allowable because of the aforementioned deficiencies discussed with respect to claim 1 and for the limitations recited in claim 9.

Claim 10 depends from claim 9 and further recites that the longitudinal support means of each of said branches is attached to the outer surface of the graft layer of each of said branches. As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Pinheiro does not teach that the struts 40 are attached to the outer surface of the graft layer. In fact, Pinheiro teaches that the stents and struts are provided within the legs in order to maintain the legs in contact with the blood vessel in a similar manner as stents 20a and 20b. Thus, claim 10 is allowable because of the aforementioned deficiencies discussed with respect to claim 1 and for the limitations recited in claim 10.

Claim 11 depends from claim 1 and further recites that each of the longitudinal support means for the at least two branches comprises a rod, and that each of the rods extend substantially the length of the branches. As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 11 is allowable because of the aforementioned deficiencies discussed with respect to claim 1 and for the limitations recited in claim 11.

Claim 12 depends from claim 1 and further recites that the anchoring means comprises a bare stent and that the bare stent extends from the first end. As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 12 is allowable because of the aforementioned deficiencies discussed with respect to claim 1 and for the limitations recited in claim 12.

Claim 13 depends from claim 12 and further recites that the bare stent includes wall-engaging members that prevent migration of the endovascular prosthesis within the vasculature. As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 13 is allowable because of the aforementioned deficiencies discussed with respect to claim 1 and for the limitations recited in claim 13.

Claim 14 depends from claim 13 and further recites that the wall-engaging members comprise at least two axially aligned barbs. As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 14 is allowable because of the

aforementioned deficiencies discussed with respect to claim 1 and for the limitations recited in claim 14.

Claim 41 recites an endovascular prosthesis that comprises a trunk portion having a first end, a second end, and a trunk lumen extending between the first end and the second end. The trunk portion includes means for laterally supporting said trunk portion. The means comprises an expandable support member. A furcated portion is connected to the second end of the trunk portion. The furcated portion includes at least two branches that extend from an intersection of the furcated portion. Each of the at least two branches have longitudinal support means and a branch lumen in fluid communication with the trunk lumen. The furcated portion is substantially free of an expandable support member. An anchoring means is connected to the first end of the trunk portion. The anchoring means secures the first end within a vasculature.

Claim 41 is patentable over Pinheiro because claim 41 recites that the furcated portion is substantially free of an expandable support member. As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 41 is allowable because of the aforementioned deficiencies discussed with respect to claim 1 and for the limitations recited in claim 41.

Claim 43 depends from claim 41 and further recites that the trunk portion includes a graft layer. The means for laterally supporting the trunk portion is attached to the graft layer of the trunk portion. As discussed above respect to claim 41, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 43 is allowable because of the aforementioned deficiencies discussed with respect to claim 41 and for the limitations recited in claim 43.

Claim 44 depends from claim 41 and further recites that the means for laterally supporting the trunk portion comprises a radially expandable stent. As discussed above respect to claim 41, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 44 is allowable because of the aforementioned deficiencies discussed with respect to claim 41 and for the limitations recited in claim 44.

Claim 45 depends from claim 41 and further recites that the trunk portion and the furcated portion extend along a longitudinal axis and said intersection lies in a plane perpendicular to said longitudinal axis. As discussed above respect to claim 41, Pinheiro does not teach that the second end is substantially free of an expandable

support member. Thus, claim 45 is allowable because of the aforementioned deficiencies discussed with respect to claim 41 and for the limitations recited in claim 45.

Claim 46 depends from claim 41 and further recites that each of the at least two branches has a substantially equal length. As discussed above respect to claim 41, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 46 is allowable because of the aforementioned deficiencies discussed with respect to claim 41 and for the limitations recited in claim 46.

Claim 47 depends from claim 41 and further recites that each of the at least two branches includes a graft layer. The longitudinal support means of each of the branches is attached to the graft layers of the branches. As discussed above respect to claim 41, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 47 is allowable because of the aforementioned deficiencies discussed with respect to claim 41 and for the limitations recited in claim 47.

Claim 48 depends from claim 41 and further recites that each of the longitudinal support means for the at least two branches comprises a rod, each of the rods extend substantially the length of the branches. As discussed above respect to claim 41, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 48 is allowable because of the aforementioned deficiencies discussed with respect to claim 41 and for the limitations recited in claim 48.

Claim 49 depends from claim 41 and further recites that the anchoring means comprises a bare stent. The bare stent permits radial flow of fluids through the bare stent. As discussed above respect to claim 41, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 49 is allowable because of the aforementioned deficiencies discussed with respect to claim 41 and for the limitations recited in claim 49.

Claim 57 recites an endovascular prosthesis that comprises a trunk portion having a first end, a second end, and a trunk lumen extending along a first longitudinal axis between the first end and the second end. The trunk portion including a radially expandable tubular stent that extends substantially the length of said trunk portion. A furcated portion is connected to the trunk portion and extends along the first longitudinal axis. The furcated portion includes at least two branches extending from an intersection lying in a plane perpendicular to said first longitudinal

axis. Each of the at least two branches has a rod longitudinally extending substantially the length of each of the at least two branches and a branch lumen in fluid communication with the trunk lumen of the trunk portion. The furcated portion is substantially free of a radially expandable tubular stent. Anchoring means are connected to the first end of the trunk portion. The anchoring means secures the first end within a vasculature.

Claim 57 is patentable over Pinheiro because claim 41 recites that the furcated portion is substantially free of an expandable support member. As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 57 is allowable because of the aforementioned deficiencies discussed with respect to claim 1 and for the limitations recited in claim 57.

Claim 58 depends from claim 57 and further recites that the trunk portion includes a graft layer. The radially expandable tubular stent is attached to the outer surface of the graft layer of the trunk portion. As discussed above respect to claim 57, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 58 is allowable because of the aforementioned deficiencies discussed with respect to claim 57 and for the limitations recited in claim 58.

Claim 59 depends from claim 57 and further recites that each of the at least two branches has a substantially equal length. As discussed above respect to claim 57, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 59 is allowable because of the aforementioned deficiencies discussed with respect to claim 57 and for the limitations recited in claim 59.

Claim 60 depends from claim 57 and further recites that each of the at least two branches includes a graft layer. The rod of the branches is attached to the graft layer of each of the at least two branches. As discussed above respect to claim 57, Pinheiro does not teach that the second end is substantially free of an expandable support member. Thus, claim 60 is allowable because of the aforementioned deficiencies discussed with respect to claim 57 and for the limitations recited in claim 60.

2. The 35 U.S.C. §103(a) rejection of claims 2-5, 21-34, and 42.

Claims 2-5, 21-34 and 42 were rejected under 35 U.S.C. §103(a) as being obvious over Pinheiro.

Claim 2 depends from claim 1 and further recites that the first end has an inner surface that defines the central lumen. The inner surface facilitates non-turbulent fluid flow through the central lumen.

Claim 2 is patentable over Pinheiro because: (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, (2) Pinheiro teaches away from providing an implantable prosthesis with an inner surface that facilitates non-turbulent fluid flow, and (3) the Office Action fails to provide any support for its assertion that it is well known to provide a stent support structure with struts on the outside of the graft layer.

As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Pinheiro teaches that tubular leg stents 29a and 29b of the type similar to stents 20 may be provided within each of tubular legs 91 adjacent open end portions 91a and spaced from second end portion 90b of bifurcated graft 90. (Column 5, lines 59-64). Struts 49 are attached at both ends between leg stents 29a and 29b as shown in Fig. 5. The leg stents 29a and the attached struts 49 function as an expandable support member. In contrast, the second end of the endovascular prosthesis does not include an expandable support member. Thus, Pinheiro do not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member.

Additionally, Pinheiro teaches away from providing an implantable prosthesis with an inner surface that facilitates non-turbulent fluid flow. Pinheiro specifically states that

"in this embodiment, stent 20b which is positioned adjacent second end portion 90(b) is positioned entirely within inner lumen 95 of bifurcated graft 90. Such position would obviate the need for anchoring barbs thereon."  
(Column 5, lines 51-57).

A stent positioned within the inner lumen would not provide an inner surface which facilitates non-turbulent fluid flow because the stent would cause turbulence within the inner lumen. Thus, one skilled in the art would have no motivation based on Pinheiro to provide an inner surface that has a non-turbulent fluid flow.

The Office Action suggests that it is well known in the art that supporting stents may be fixed to the outside rather than the inside of grafts with the self-evident advantage of providing smoother flow within the graft.

The applicants respectfully traverse the assertion that it is known to position stents and struts within the first end of a bifurcated graft to provide non-turbulent fluid flow within the graft. The prior art cited in the Office Action teaches no such

construction. Additionally, the Office Action provides no basis for this assertion other than mere speculation and hence this assertion cannot be relied as a basis for the rejection of claim 2 absent a specific showing. Therefore, the applicant requests that the Office Action either provide a reference with such a showing or withdrawal this rejection.

Assuming arguendo that the Office Action was able to provide a reference that taught a stent can be provided on the outside of the graft layer, the prior art would still not teach the invention recited in claim 2. Pinheiro specifically teaches that the stent should be provide on the inside of the graft layer in order to provide effective internal support for the graft when in a compressed state and radial support when in an expanded state after implantation. Thus, a reference that teaches providing a stent on the outer surface of the graft layer would teach away from the motivation provided in Pinheiro to provide the stent on the inside of the graft layer. Therefore, such a combination on its face would not be permissible. Accordingly, claim 2 is patentable in view of Pinheiro because of the aforementioned deficiencies in the rejection of claim 2.

Claim 3 depends from claim 2 and further recites that the first end includes a graft layer. As discussed above with respect to claim 2, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, (2) Pinheiro teaches away from providing an implantable prosthesis with an inner surface that facilitates non-turbulent fluid flow, and (3) the Office Action fails to provide any support for its assertion that it is well known to provide a stent support structure with struts on the outside of the graft layer. Thus, claim 3 is allowable because of the aforementioned deficiencies discussed with respect to claim 2 and for the limitations recited in claim 3.

Claim 4 depends from claim 3 and further recites that the graft layer of the first end comprises a biocompatible fabric that is formed from expanded polytetrafluoroethylene. As discussed above with respect to claim 2, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, (2) Pinheiro teaches away from providing an implantable prosthesis with an inner surface that facilitates non-turbulent fluid flow, and (3) the Office Action fails to provide any support for its assertion that it is well known to provide a stent support structure with struts on the outside of the graft layer. Thus, claim 4 is allowable because of the aforementioned deficiencies discussed with respect to claim 2 and for the limitations recited in claim 4.



Claim 5 depends from claim 3 and further recites that the means for laterally supporting the first end is attached to the outer surface of the graft layer of the first end. As discussed above with respect to claim 2, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, (2) Pinheiro teaches away from providing an implantable prosthesis with an inner surface that facilitates non-turbulent fluid flow, and (3) the Office Action fails to provide any support for its assertion that it is well known to provide a stent support structure with struts on the outside of the graft layer. Thus, claim 3 is allowable because of the aforementioned deficiencies discussed with respect to claim 2 and for the limitations recited in claim 3.

Claim 21 recites an endovascular prosthesis that comprises a first end having a longitudinally extending central lumen and means for laterally supporting the first end. The means comprises an expandable support member. A furcated second end includes at least three branches that extend from an intersection of the furcated second end. Each of the at least three branches includes a longitudinal support means and a branch lumen in fluid communication with the central lumen of the first end. The furcated second end is substantially free of an expandable support member. An anchoring means secures the first end within a vasculature.

Claim 21 is patentable over Pinheiro because (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches.

As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Pinheiro teaches that tubular leg stents 29a and 29b of the type similar to stents 20 may be provided within each of tubular legs 91 adjacent open end portions 91a and spaced from second end portion 90b of bifurcated graft 90. (Column 5, lines 59-64). Struts 49 are attached at both ends between leg stents 29a and 29b as shown in Fig. 5. The leg stents 29a and the attached struts 49 function as an expandable support member. In contrast, the second end of the endovascular prosthesis does not include an expandable support member. Thus, Pinheiro do not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member.

Moreover, Pinheiro neither teaches nor suggests a prosthesis that includes at least three branches that extend from a second end of the furcated graft. Pinheiro teaches only a bifurcated graft with no mention of providing additional branches.

The Office Action asserts that it is well known to provide at least three branches in grafts so various blood vessels may be connected and therefore it would be obvious to provide the Pinheiro graft with three branches to have this advantage.

The applicants respectfully traverse this assertion. The applicants agree that the art may show a graft with three branches but nowhere to the applicant's knowledge is it disclosed or suggested that the three branches extend from an intersection of one end of a graft. Therefore, the applicant requests that the Office Action either provide such a reference making this showing or withdrawal this rejection.

Claim 22 depends from claim 21 and further recites that the first end has an inner surface that defines the central lumen. The inner surface facilitates non-turbulent fluid flow through said central lumen. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Moreover, as discussed above with respect to claim 2, Pinheiro teaches away from providing an implantable prosthesis with an inner surface that facilitates non-turbulent fluid flow, and the Office Action fails to provide any support for its assertion that it is well known to provide a stent support structure with struts on the outside of the graft layer. Thus, claim 22 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 and 2 for the limitations recited in claim 22.

Claim 23 depends from claim 22 and further recites that the first end includes a graft layer. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Moreover, as discussed above with respect to claim 2, Pinheiro teaches away from providing an implantable prosthesis with an inner surface that facilitates non-turbulent fluid flow, and the Office Action fails to provide any support for its assertion that it is well known to provide a stent support structure with struts on the outside of the graft layer. Thus, claim 23 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 and 2 for the limitations recited in claim 23.

Claim 24 depends from claim 23 and further recites that the graft layer of the first end comprises a biocompatible fabric that is formed from expanded polytetrafluoroethylene. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an

expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Moreover, as discussed above with respect to claim 2, Pinheiro teaches away from providing an implantable prosthesis with an inner surface that facilitates non-turbulent fluid flow, and the Office Action fails to provide any support for its assertion that it is well known to provide a stent support structure with struts on the outside of the graft layer. Thus, claim 22 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 and 2 for the limitations recited in claim 22.

Claim 25 depends from claim 23 and further recites that the means for laterally supporting the first end is attached to the outer surface of the raft layer of said first end. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Moreover, as discussed above with respect to claim 2, Pinheiro teaches away from providing an implantable prosthesis with an inner surface that facilitates non-turbulent fluid flow, and the Office Action fails to provide any support for its assertion that it is well known to provide a stent support structure with struts on the outside of the graft layer. Thus, claim 25 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 for the limitations recited in claim 25.

Claim 26 depends from claim 21 and further recites that the means for laterally supporting the first end comprises a radially expandable stent. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, claim 26 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 for the limitations recited in claim 26.

Claim 27 depends from claim 21 and further recites that the first end and the second end extend along a longitudinal axis and said intersection lies in a plane perpendicular to said longitudinal axis. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, claim 27 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 for the limitations recited in claim 27.

Claim 28 depends from claim 27 and further recites that each of the at least three branches has a substantially equal length. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, claim 28 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 for the limitations recited in claim 28.

Claim 29 depends from claim 21 and further recites that each of the at least three branches includes a graft layer. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, claim 29 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 for the limitations recited in claim 29.

Claim 30 depends from claim 29 and further recites that each of the longitudinal support means of each of the branches is attached to the graft layer of each of the branches. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, claim 30 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 and 2 for the limitations recited in claim 30.

Claim 31 depends from claim 21 and further recites that each of the longitudinal support means for the at least three branches comprises a rod, and wherein each of the rods extend substantially the length of the branches. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, claim 31 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 for the limitations recited in claim 31.

Claim 32 depends from claim 21 and further recites that the anchoring means comprises a bare stent. The bare stent extends from said first end. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro

to provide three branches. Thus, claim 32 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 for the limitations recited in claim 32.

Claim 33 depends from claim 32 and further recites that the bare stent includes wall-engaging members that prevent migration of the endovascular prosthesis within the vasculature. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, claim 33 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 for the limitations recited in claim 33.

Claim 34 depends from claim 32 and further recites that the wall-engaging members comprise at least two axially aligned barbs. As discussed above with respect to claim 21, (1) Pinheiro does not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member, and (2) the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, claim 34 is allowable because of the aforementioned deficiencies discussed with respect to claim 21 for the limitations recited in claim 34.

3. The 35 U.S.C. §103(a) rejection of claims 6, 15-17, 19, 26, 35-37, 39, 44, 50-52, 54, 56, 61-63.

Claims 6, 15-17, 19, 26, 35-37, 39, 44, 50-52, 54, 56, 61-63 were rejected under 35 U.S.C. §103(a) as being obvious over Pinheiro in view of U.S. Patent No. 6,036,723 to Anidjar et al.

Claim 6 depends from claim 1 and further recites that the means for laterally supporting the first end comprises a radially expandable stent.

Claim 6 is patentable over Pinheiro in view of Anidjar et al. because Pinheiro in view of Anidjar do not teach or suggest that the branches of Pinheiro can include a means for longitudinally supporting the branches but are substantially free of an expandable support member.

As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Pinheiro teaches that tubular leg stents 29a and 29b of the type similar to stents 20 may be provided within each of tubular legs 91 adjacent open end portions 91a and spaced from second end portion 90b of bifurcated graft 90. (Column 5, lines 59-64). Struts 49 are attached at both ends between leg stents 29a and 29b as shown in Fig. 5. The leg stents 29a and the attached struts 49 function as an expandable support member. In

contrast, the second end of the endovascular prosthesis does not include an expandable support member. Thus, Pinheiro do not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member.

Anidjar et al. also do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Anidjar et al. in one embodiment teach the stent extends the length of the branches as shown in Fig. 1. In alternate embodiment as shown in Fig. 14, Anidjar et al. do not teach that a stent extends the length of the bifurcated graft. In neither embodiment of Anidjar et al., is a bifurcated graft provided that, which has a longitudinal support means for the branches but does not include a expand support member. Thus, Andidjar et al. like Pinheiro fails to teach or suggest all of the limitations of claim 6. Therefore allowance of claim 6 is respectfully requested.

Claim 15 depends from claim 1 and further recites that the endovascular prosthesis includes at least two outflow limbs. The at least two outflow limbs each have a first end and a second end, and a lumen extending between the first end and second end. The first ends of each of the at least two outflow limbs are connected to the at least two branches to allow fluid flow from the at least two branches through the outflow limbs.

As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 15. Therefore, allowance of claim 15 is respectfully requested.

Claim 16 depends from claim 15 and further recites that each of the at least two outflow limbs is tubular and includes a graft layer and an expandable support member. Each of the expandable support members of the outflow limbs being attached to the graft layers of the outflow limbs. As discussed above with respect to claim 15, Pinheiro in view of Anidjar fail to teach or suggest teach that the second end is substantially free of an expandable support member. Therefore, claim 16 is allowable because of the aforementioned deficiencies in the rejection with respect to claim 15 and the specific limitations recited in claim 16.

Claim 17 depends from claim 16 and further recites that each of the first ends of the at least two outflow limbs includes at least two axially aligned barbs. The at least two axially aligned barbs preventing distal and proximal migration of said outflow limb when said outflow limb is connected to said branch. As discussed above

with respect to claim 15, Pinheiro in view of Anidjar fail to teach or suggest teach that the second end is substantially free of an expandable support member. Therefore, claim 17 is allowable because of the aforementioned deficiencies in the rejection with respect to claim 15 and the specific limitations recited in claim 17.

Claim 19 depends from claim 15 and further recites that each of the second ends of the at least two outflow limbs includes an anchoring means. As discussed above with respect to claim 15, Pinheiro in view of Anidjar fail to teach or suggest teach that the second end is substantially free of an expandable support member. Therefore, claim 19 is allowable because of the aforementioned deficiencies in the rejection with respect to claim 15 and the specific limitations recited in claim 19.

Claim 26 depends from claim 21 and further recites that the means for laterally supporting the first end comprises a radially expandable stent. As discussed above with respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Furthermore, as discussed above with respect to claim 21, the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 26. Therefore, allowance of claim 26 is respectfully requested.

Claim 35 depends from claim 31 and further recites that the endovascular prosthesis comprises at least three outflow limbs. The at least three outflow limbs each has a first end and a second end, and a lumen extending between the first end and second end. The first ends of each of the at least three outflow limbs are connected to the at least three branches to allow fluid flow from the at least three branches through the outflow limbs.

As discussed above with respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Furthermore, as discussed above with respect to claim 21, the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 35. Therefore, allowance of claim 35 is respectfully requested.

Claim 36 depends from claim 35 and further recites that each of the at least three outflow limbs is tubular and includes a graft layer and an expandable support

member and each of the expandable support members of the outflow limbs are attached to the graft layers of the outflow limbs.

As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Furthermore, as discussed above with respect to claim 21, the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 36. Therefore, allowance of claim 36 is respectfully requested.

Claim 37 depends from claim 36 and further recites that each of the first ends of the at least three outflow limbs includes at least two axially aligned barbs. The at least two axially aligned barbs prevent distal and proximal migration of said outflow limb when said outflow limb is connected to said branch.

As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Furthermore, as discussed above with respect to claim 21, the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 37. Therefore, allowance of claim 37 is respectfully requested.

Claim 39 depends from claim 35 and further recites that each of the second ends of the at least three outflow limbs includes an anchoring means.

As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Furthermore, as discussed above with respect to claim 21, the Office Action fails to provide any motivation or suggestion to modify Pinheiro to provide three branches. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 39. Therefore, allowance of claim 39 is respectfully requested.

Claim 44 depends from claim 41 and further recites that the means for laterally supporting the trunk portion comprises a radially expandable stent.

As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do



not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 44. Therefore, allowance of claim 44 is respectfully requested.

Claim 50 depends from claim 41 and further recites that the endovascular prosthesis comprises at least two outflow limbs. The at least two outflow limbs each having a first end and a second end, and a lumen extending between said first end and second end. The first ends of each of the at least two outflow limbs are connected to the at least two branches to allow fluid flow from the at least two branches through the outflow limbs.

As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 50. Therefore, allowance of claim 50 is respectfully requested.

Claim 51 depends from claim 50 and further recites that each of the at least two outflow limbs is tubular and includes a graft layer and an expandable support member attached to the graft layer of said outflow limb.

As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 51. Therefore, allowance of claim 51 is respectfully requested.

Claim 52 depends from claim 50 and further recites that each of the first ends of the at least two outflow limbs includes at least two axially aligned barbs. The at least two axially aligned barbs preventing distal and proximal migration of the outflow limb when the outflow limb is connected to the branch.

As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 52. Therefore, allowance of claim 52 is respectfully requested.

Claim 54 depends from claim 50 and further recites that each of the second ends of the at least two outflow limbs includes an anchoring means. As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 54. Therefore, allowance of claim 54 is respectfully requested.

Claim 56 depends from claim 50 and further recites that the furcated portion includes at least three branches and the endovascular prosthesis includes at least three outflow limbs. As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 56. Therefore, allowance of claim 56 is respectfully requested.

Claim 61 depends from claim 57 and further recites that the endovascular prosthesis comprises at least two outflow limbs. The at least two outflow limbs each have a first end and a second end, and a lumen extending between the first end and second end. The first ends of each of the at least two outflow limbs are capable of being connected to the at least two branches to allow fluid flow from the at least two branches through the at outflow limbs.

As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 61. Therefore, allowance of claim 61 is respectfully requested.

Claim 62 depends from claim 61 and further recites that each of the at least two outflow limbs is tubular and includes a graft layer and an expandable support member attached to the graft layer. As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 62. Therefore, allowance of claim 62 is respectfully requested.

Claim 63 depends from claim 61 and further recites that each of the first ends of the at least two outflow limbs includes at least two axially aligned barbs. The at least two axially aligned barbs preventing distal and proximal migration of the outflow limb when the outflow limb is connected to the branch.

As discussed above respect to claim 6, Pinheiro does not teach that the second end is substantially free of an expandable support member. Moreover, Anidjar et al. do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Thus, Pinheiro in view of Anidjar et al. fail to teach all of the limitations of claim 63. Therefore, allowance of claim 63 is respectfully requested.

4. The 35 U.S.C. §103(a) rejection of claims 18, 20, 38, 40, 53, 55, 64, and 66.

Claims 18, 20, 38, 40, 53, 55, 64, and 66 were rejected under 35 U.S.C. §103(a) as being unpatentable over Pinheiro in view of Anidjar et al. and further in view of U.S. Patent No. 6,051,020 to Goicoechea et al.

Claims 18, 20, 38, 40, 53, 55, 64, and 66 each recite the limitations that each of the first ends of the at least two outflow limbs is radially tapered. Claims 18, 20, 38, 40, 53, 55, 64, and 66 are patentable over Pinheiro in view of Anidjar et al. and Goicoechea et al. because Pinheiro in view of Anidjar et al. and Goicoechea et al. do not teach or suggest that the branches of Pinheiro can include a means for longitudinally supporting the branches but are substantially free of an expandable support member.

As discussed above respect to claim 1, Pinheiro does not teach that the second end is substantially free of an expandable support member. Pinheiro teaches that tubular leg stents 29a and 29b of the type similar to stents 20 may be provided within each of tubular legs 91 adjacent open end portions 91a and spaced from second end portion 90b of bifurcated graft 90. (Column 5, lines 59-64). Struts 49 are attached at both ends between leg stents 29a and 29b as shown in Fig. 5. The leg stents 29a and the attached struts 49 function as an expandable support member. In contrast, the second end of the endovascular prosthesis does not include an expandable support member. Thus, Pinheiro do not teach or suggest that the branches of Pinheiro are substantially free of an expandable support member.

Anidjar et al. also do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member. Anidjar et al. in one embodiment teach the stent extends the length of the branches as shown in Fig. 1. In alternate embodiment as shown in Fig. 14, Anidjar et

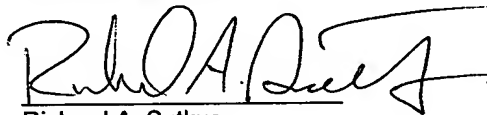
al. do not teach that a stent extends the length of the bifurcated graft. In neither embodiment of Anidjar et al., is a bifurcated graft provided that, which has a longitudinal support means for the branches but does not include a expand support member. Thus, Andidjar et al. like Pinheiro fails to teach or suggest all of the limitations of claim 6. Therefore allowance of claim 6 is respectfully requested.

Goicoechea et al. teaches a bifurcated stent 10 that is covered with a graft layer as shown in Fig. 7. (Column 12, lines 53-56). Goicoechea et al. however do not teach or suggest do not teach that the branches include a means for longitudinally supporting the branches but are free of an expandable support member.

Thus, Pinheiro in view of Anidjar et al. and Goicoechea et al. do not teach or suggest that the branches of Pinheiro can include a means for longitudinally supporting the branches but are substantially free of an expandable support member. Since claims 18, 20, 38, 40, 53, 55, 64, and 66 all depend either directly or indirectly from independent claims that recite this limitation, they are also allowable.

In view of the foregoing, it is respectfully submitted that the above-identified application is in condition for allowance, and allowance of the above-identified application is respectfully requested.

Respectfully submitted,



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